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ABSTRACT

This paper explores features that are common to both modern Western scientific thought and traditional African thought. The differences between the two are enumerated. In the Western scheme of knowledge, there is a continuous quest for explanatory theory for every phenomenon investigated. The paper notes that atoms, molecules, gods, and spirits have an intellectual function in the generation of knowledge in both Western and African ideas. If one of the essential functions of theory is to help the mind transcend human limitations, it will be fair to say that both the diviner and the physicist are making the same use of theory to transcend the limited vision of natural causes provided by common sense. Most traditional African cultures have adopted a personal idiom as the basis of their attempts to understand the world. The paper notes the difference between Western and African ideas in terms of non-personal and personalized theory. (YP)

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WESTERN SCIENTIFIC THOUGHT AND AFRICAN TRADITIONAL BELIEFS AND THOUGHT

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Western scientists have often looked on traditional African thought with skepticism. There are two possible explanations for such skepticism. First, it appears that many Western scientists are unfamiliar with the theoretical thinking of their own culture. Secondly, as we shall come to learn, certain aspects of such theoretical thinking are the counterparts of those very features of traditional African thought which these scientists tend to find the most puzzling.

This paper will begin by briefly exploring features that are common to both modern Western scientific thought and traditional African thought. The differences between the two will then be enumerated. By adopting this approach, we shall be less likely to mistake differences of idiom for differences of substance, and instead be able to identify those features which really do distinguish one kind of thought from the other.

This approach is often criticized because it tends to blur the undeniable distinctions between traditional African thought and Western scientific thought, and because it presents traditional African thinking as a species of

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science. In order to address these criticisms, I will attempt to establish the salient differences between African and Western scientific thinking and to offer possible explanations for these differences.

In the Western scheme of knowledge, there is a continuous quest for explanatory theory for every phenomenon we attempt to explain. This quest involves the elaboration of a scheme of entities or forces operating "behind" or "within" the world of ordinary everyday observations. These entities must be of a limited number of kinds and their behavior must be governed by a limited number of general principles. Such a theoretical scheme is linked to the world of everyday experience by statements identifying happenings within it with happenings in the everyday world. These identification statements are referred to as Correspondence Rules in the language of Philosophy of Science. Explanations of observed happenings are generated from statements about the behavior of entities in the theoretical scheme. In the sciences, well-known explanatory theories of this kind include the kinetic theory of gases, the planetary-atom theory of matter, and the wave-particle theory of light.

One of the perennial philosophical puzzles posed by explanations in terms of such theories derives from the Correspondence Rule statement. For example, in what sense can we really say that an increase of pressure in a gas will bring about an increase in the velocity of the so-called tiny molecules moving in an otherwise empty space? How can we say that a thing is at once itself and something quite different? Numerous solutions to this problem have been proposed. The modern positivists have taken the view that it is the "things" of common sense that are real, while the "things" of theory are mere fictions useful in ordering the world of common sense. Locke, Planck, and others have

taken the line that it is the "things" of theory that are real, while things of the everyday world are mere appearances.

Now it is appropriate to ask what has all this got to do with the gods and spirits of traditional African thinking? At face value, we may see no connection. Indeed, there is a strong belief among some Western scholars that traditional African thinking is not a serious theoretical thinking. To buttress their argument they compare the simplicity, regularity, and elegance of the theoretical schemas of the sciences with the unruly complexity and caprice of the world of gods and spirits.

It is important to point out that this apparent antithesis is not supported by recent research data. Admittedly, in a very superficial sense, African cosmologies tend toward proliferation. However, in this same superficial vein, we can point to a similar tendency in Western scientific thought, which for common sense unitary objects give us myriad molecules. If, however, the aim of theory is to demonstrate that only a limited number of kinds of entities or processes underlie the diversity of experiences, then the picture becomes very different. In fact, recent studies of African cosmologies by notable researchers show that the gods of a given culture do form a scheme which integrates the vast diversity of everyday experience in terms of the action of a relatively few kinds of forces. Similarly, a study conducted by Horton (1967) demonstrated that everything that happens in traditional African life could be interpreted in terms of a scheme which postulates three basic kinds of forces: ancestors, heroes and water-spirits.

The observation is commonly made that the spirits and the gods so common in African life are capricious and irregular in their behavior. The gods may sometimes appear capricious to the unreflective ordinary man. But for the religious expert charged with the diagnosis of spiritual agencies at work

behind observed events, a basic modicum of regularity in the behavior is the major premise on which his work depends. Like atoms, molecules and waves, then, the gods serve to introduce unity into diversity, simplicity into complexity, order into disorder, regularity into anomaly. Once we have grasped that this is their intellectual function, many of the misconceptions about African thinking disappear.

It is important to note that atoms, molecules, gods, and spirits have an intellectual function in the generation of knowledge in both Western and African ideas. Indeed, if we substitute atoms and molecules for gods and spirits, these turn out to be the very questions posed by modern scientific theory in the minds of Locke, Aquinas, and Hobbs, as well as a host of European philosophers from Newton's time onwards.

One of the essential functions of theory is to help the mind transcend human limitations. Equally important, theory places things in a causal context wider than that provided by common sense. Putting things in a causal context is one of the jobs of common sense. But although common sense serves us well at a certain level, its limitations cannot be overlooked. Thus, without hesitation, one may be compelled to say that the principal tool of common sense is induction or "putting two and two together", the process of inference so beloved of the scientists and positive philosophers. But we can only "put two and two together" if one is looking in the right direction. Thus, common-sense thought looks for the antecedents of any happening among events adjacent in space and time: It abhors action at a distance. Equally, common sense looks for the antecedents of a happening amongst events that are in some way commensurable with it. Common Sense is at the root of the hard-dying dictum "To every effect, there is a cause". Gross incommensurability defeats it. One of the most obvious achievements of modern scientific theory

is its revelation of a whole array of causal connections which are quite staggering to the eye of common sense. Think for instance of the connection between the tse tse fly and river blindness, or better still, think of the connection between the small, innocuous water-snail, and the disease of bilharziasis, which can render whole populations lazy and inept.

We may at this juncture perhaps ask what relevance all this has to do with traditional African thought. The answer is not far-fetched. Many Western scholars, and particularly scientists, assert that African thinking is more interested in the supernatural causes of things than it is in their natural causes. This, at best, is a misinterpretation closely connected to the one we discussed in the previous section. Perhaps the best way to get rid of it is to consider the commonest case of the search for the causes in traditional Africa - the diagnosis of disease. Through the length and breadth of the African continent, the sick or afflicted people go to consult diviners as to the causes of their troubles. Usually, the answer they receive involves a god or other spiritual agency, and the remedy prescribed involves the propitation or calling-off of this being.

But this is very seldom the whole story. For the diviner who diagnoses the instruction of a spiritual agency is also expected to provide some acceptable explanation of what moved the agency in question to intervene. The reason commonly given involves reference to some event in the world of visible, tangible happenings. For example, if a diviner diagnoses the action of witchcraft influence, or lethal medicine spirits, it is usual for him to add something about human hatreds, jealousies, and misdeeds that have brought such agencies into action. Or, if he diagnoses the wrath of an ancestor, it is usual for him to point to the human breach of kinship morality which has called down this wrath.

The situation here is not very different from that in which a puzzled American or European layman may see a large mushroom cloud on the horizon, he may consult a neighbor who happens to be a physicist, asking, "Why the cloud?" "Well, what you see is a massive fusion of hydrogen nuclei which has just occurred", the physicist responds. Pressed further, however, our learned physicist is likely to refer to the assemblage and dropping of a bomb containing certain special substances. Here, without appearing naive, my readers may substitute 'disease' for 'mushroom cloud', 'spirit agent' for 'massive fusion of hydrogen nuclei', and 'breach of kinship morality' for 'assemblage and dropping of a bomb', and we are back with the diviner. In both cases, however, reference to theoretical entities is used to link events in the visible, tangible world (natural effects) to their antecedents in the same world (natural causes).

To say of the traditional African thinker that he is interested in supernatural rather than natural causes makes little more sense, therefore, than to say of the physicist that he is interested in elementary particles rather than natural causes. Currently, in the United States, many layman are wondering why the Federal Government should spend so much to build a supercollider for basic particle physics research while the nation is in the midst of a budget crisis. Well, those not initiated into the cult of particle physics will consider such expense a waste of taxpayers' money. However, it is fair to say that both the diviner and the physicist are making the same use of theory to transcend the limited vision of natural causes provided by common sense.

Granted, this common preoccupation with natural causes, the fact remains that the causal link between disturbed social relations and disease or misfortune, so frequently postulated by traditional religious thought, is one

which seems somewhat strange and alien to many Western medical scientists. Following the normal practice of historians of Western ideas, we can approach the problem of trying to understand this strange causal notion from two angles: First, we can inquire what influence a particularly theoretical idiom has in molding this and similar traditional notions. Secondly, we can inquire whether the range of experience available to members of traditional societies has influenced causal notions by throwing particular conjunctions of events into special prominence.

Theory, as I have noted, serves to place events in a wider causal context than that provided by common sense. But once a particular theoretical idiom has been developed, it tends to direct people's attention towards certain kinds of causal linkage and away from others. Now most African traditional cultures have adopted a personal idiom as the basis of their attempt to understand the world. And once one has adopted such an idiom, it is a natural step to suppose that personal beings underpin, among other things, the life and strength of social groups. Now it is in the nature of a personal being who has his/her design thwarted to visit retribution on those who thwart him. Where the designs involve maintaining the strength and unity of a social group, members of the group who disturb this unity are thwarters, and hence are ripe for punishment. Disease and misfortune are the punishment.

Are these traditional notions of cause merely artifacts of the prevailing theoretical idiom, fantasies with no basis in reality? Or are they responses to features of peoples' experiences which in some sense are "really there?" As an African, my feeling is that, although these notions are ones to which people are not pre-disposed by the prevailing theoretical idiom, they also register certain important features of the objective simulation. Let us remind ourselves that modern medical professionals, though long blinded to

such things by the fantastic success of the germ theory of disease, are once more beginning to toy with the idea that disturbances in a person's social life can in fact contribute to a whole series of sicknesses, ranging from those commonly thought of as mental malaise, to many more commonly thought of as bodily. In making this rediscovery, however, we see medical practitioners have tended to associate it with the so-called 'pressure of modern living'. They have tended to imagine traditional society as psychological paradises in which disease-producing mental stresses are at a minimum.

If life in modern industrial society contains sources of mental stress adequate to causing or exacerbating a wide range of sicknesses, so too does life in traditional village communities. Hence, the need to approach traditional African theories of the social causation of sickness with respect. Such respect and readiness to learn is, I suggest, particularly appropriate with regard to what is commonly known as mental disease. I say this because the grand theories of Western psychiatry have a notoriously insecure empirical base, and are probably culture-bound to a high degree. Even if those diseases in which the key factor is definitely an infecting micro-organism, I suggest, traditional African theory has something to offer.

Over much of traditional Africa, we are dealing with small-scale, relatively self-contained communities. These are the sort of social units that have helped them achieve equilibrium with diseases.

As I have shown, the gods and spirits do perform an important theoretical function in pointing to certain forms of causal connection; they are probably not very useful as the basis of a wider view of the world. Nevertheless, there do seem to be few cases in which the theoretical framework of which they are the basis may have something to contribute to the theoretical framework of modern medicine. For instance, there are several points at which Western

psycho-analytic theory, with its apparatus of personalized mental entities, resembles traditional West African religious theory. More specifically, there are striking resemblances between psycho-analytic ideas about the individual mind as a congress of warring entities, and West Africa ideas, about the body as a meetingplace of multiple souls in both systems of belief, one personal entity is identified with the stream of consciousness, while the others operate as an "unconscious," sometimes cooperating with consciousness and sometimes as war with it. Now the more flexible psycho-analysts have long suspected that Freud's allocation of particular agencies of the mind may well be appropriate to certain cultures only.

Modern medical scientists have long been distracted from making the causal connection between social disturbance and disease by the success of the germ theory. It would seen, indeed, that a conjunction of the germ theory, of the discovery of potent antibiotics and immunization techniques, and of conditions militating against the build-up of natural resistance to many killer infections, for long made it very difficult for scientists to see the importance of the connection. Conversely, perhaps, a conjunction of no germ theory, no potent antibiotics, no immunization techniques, with conditions favoring the build-up of considerable natural resistance to killer infections served to throw this same causal connection into relief in the mind of the transitional killer. If one were asked to choose between germ theory innocent of psychosomatic insight and traditional psychosomatic theory innocent about ideas of infection, one would almost certainly choose the germ theory. For, in terms of quantitative results, it is clearly the more vital to human well-being. But it is salutary to remember that not all the profits are on one side.

From what has been said thus far, it should be clear that one commonly accepted way of contrasting traditional African thought with scientific thought is misleading. I am here thinking of the contrast between traditional religious thought as "non-empirical" with scientific thought as "empirical". In the first place, the contrast is misleading because traditional African thought is no more nor less interested in the natural causes of things than is the theoretical thought of the sciences. Indeed, the intellectual function of its supernatural beings (as, too, that of atoms, waves, etc.) is the extension of people's vision of natural causes. In the second place, the contrast is misleading because African religious theory clearly does more than postulate causal connections that bear no relation to experience. Some of the connections it postulates are by the standards of modern medical science, almost certainly real ones. To some extent, then, it successfully grasps reality.

The discussions above are by no means an attempt to make traditional thought as a variety of scientific thought. In certain current respects, the two kinds of thought are related to experience in quite different ways, but it is not only where scientific method is in use that we find theories which both aim at grasping causal connections and to some extent succeed in this aim.

Scientific method is undoubtedly the surest and most efficient tool for arriving at beliefs that are successful in this respect; but it is not the only way of arriving at such beliefs. Given the basic process of theory-making, and an environmental stability which gives theory plenty of time to adjust to experience, a people's belief system may come, even in the absence of scientific method, to grasp at least some significant range of common sense. It is because traditional African religious beliefs demonstrate the truth of this that it seems apt to extend to them the label "empirical".

It is appropriate at this juncture to demonstrate that common sense and theory have complementary roles in everyday life.

In the history of European thought, there has often been opposition to a new theory on the ground that it threatens to break up and destroy the old familiar world of common sense. Such was the eighteenth century opposition to Newtonian corpuscular theory, which, so many people thought, was all set to "reduce" the warm colorful beautiful world to a lifeless, colorless wilderness of rapidly moving little balls. Not surprisingly, this eighteenth century attack was led by people like Goethe and Blake - poets whose job was precisely to celebrate the glories of the world of common sense. Such again, is the twentieth century opposition to Behaviorist Theory which many people see as a threat to "reduce" human beings to animals or even to machines. The Quantum Theory was fiercely opposed, leading Einstein to remark "God does not play with dice". Much recent Western philosophy is a monotonous and poorly reasoned attempt to bludgeon us into believing that Quantum Physics cannot possibly be true. But just as the commonsense world of things and people remained remarkably unscathed by the Newtonian revolution, so there is no reason to think it will not be too severely touched by the Quantum-Theory revolution. Indeed, a lesson of the history of European thought is that. while theories come and theories go, the world of common sense remains very little changed.

One reason for this is perhaps that all theories take their departure from the world of things and people, and ultimately return us to it. In this context, to say that a good theory "reduces" something to something else is misleading. The discussion of common sense and theory in Western thoughtis very relevant to the understanding of traditional African religions. Early accounts of such religions stressed the ever-presence of the spirit-world in

the minds of men. Later on, fieldwork experience in African societies convinced most reporters that members of such societies attended to the spirit rather intermittently (Evans-Pritchard, 1965). Many modern criticisms of Levy-Bruhl and other early theorists hinge on this observation. For the modern generation of social anthropologists, the big question has now become: 'On what kinds of occasion do people ignore the spirit world, and on what kind of occasion do they attend to it?

To answer this question, we need to recognize the essentially theoretical character of traditional African religious thinking.

I suggest that in traditional Africa, the relation between common sense and theory are essentially the same as they are in Europe. That is, common sense is the handiest and most economical tool for coping with a wide range of circumstances in everyday life. Nevertheless, there are certain circumstances that can only be coped with in terms of wider causal vision than common sense provides. And in these circumstances, there is a jump to theoretical thinking.

Let me give an example to illustrate this. The Fantes in Ghana recognize many different kinds of diseases, and have an array of herbal specifics with which to treat them. Sometimes a sick person will be treated by ordinary members of his/her family who recognizes the disease and know the specifics. Sometimes the treatment will be carried out on the instructions of a native doctor. When sickness and treatment follow these lines, the atmosphere is basically commonsensical. Often, there is little or no reference to spiritual agencies.

Sometimes, however, the sickness does not respond to treatment, and it becomes evident that the herbal specific used does not provide the whole answer. The native doctor may rediagnose and try another specific. But if

this produces no result, the suspicion will arise that "there is something else in this sickness". In other words, the perspective provided by common sense is too limited. It is at this stage that a diviner is likely to be called in (it may be the native doctor who started the treatment. Using ideas about various spiritual agencies, he will relate the sickness to a wider range of circumstances - often to disturbances in the sick person's general social life.

What I am describing here is generally referred to as a jump from commonsense to mystical thinking. But as we have seen, it is also, more significantly, a jump from the commonsense to theory. And here, as in the Westernm society, the jump occurs at the point where the limited causal vision of common sense curtails its usefulness in dealing with the situation on hand.

In the genesis of a typical theory, the drawing of an analogy between the unfamiliar and the familiar is followed by the making of a model in which something akin to the familiar is postulated as the reality underlying the unfamiliar. Both modern Western and traditional African thought-products amply demonstrate the truth of this. Whether we look among atoms, molecules, electrons, and waves, or among gods, and spirits, we find that theoretical notions nearly always have their roots in relatively homely everyday experiences, in analogues with the familiar.

What do we mean here by "familiar phenomena?" Above all, I suggest we mean phenomena strongly associated with the mind of the observer with order and regularity. That theory should depend on analogy with things familiar in this sense follows from the very nature of explanation. Since the overriding aim of explanation is to disclose order and regularity underlying apparent chaos, the search for explanatory analogies tend towards those areas of experience mostly closely associated with such qualities. Here, I think, we

have a basis for indicating why explanations in modern western Culture tend to be couched in an impersonal idiom, while explanations in traditional African society tend to be couched in a personal idiom.

In complex, rapidly changing industrial societies, the human scene is in flux. Order, regularity, predictability, simplicity, all these seem lamentably absent.It is in the world of inanimate things that such qualities are most readily seen. This is why, in the western society, many people can find themselves less at home with their fellow human beings than with things. And here too, I suggest, is why the mind in quest of explanatory analogies turns most readily to inanimate things. In the traditional African societies, we found the situation reversed. The human scene is the locus par excellence, these qualities are far less evident: Here, being less at home with people than with things is unimaginable. And here, the mind in quest of explanatory analogies turns naturally to people and their relations.

Philosophers of science have often used the molecular (kinetic) theory of gases as an illustration of this feature of model-building. The molecular theory, of course, is based on an analogy with the behavior of fast-moving, spherical balls in various kinds of space. And the philosophers have pointed out that although many important properties of such balls have been incorporated into the definition of a molecule, other important properties such as color and temperature have been omitted. They have been omitted because they have no explanatory function in relation to the observations that originally evoked the theory. Here too, we have another sense in which physical theory is based on abstraction and abstract ideas. For concepts such as 'molecule', 'atom', 'electron', 'wave', are the result of a process in which the relevant features of certain prototype phenomena have been abstracted from the irrelevant features. This sort of abstraction is

considered to be one of the distinctive features of construction of scientific knowledge. But, this like so many other such distinctions, is a false one; for just the same process is at work in traditional African thought. Thus, when traditional thought draws upon people and their social relations as the raw materials of its theoretical models, it makes use of some dimensions of human life and neglect others. The definitions of a god may omit any reference to his/her physical appearances, his/her diet, his/her mode of lodging, and so on. Asking questions about such attributes is as inappropriate as asking questions about the color of a molecule or the temperature of an electron. It is this omission of many dimensions of human life from the definition of the gods which gives them that rarified, attempted aura which the Western society calls "spiritual". But there is nothing peculiarly religious, mystical, or traditional about this "spirituality". It is the result of this same process of abstraction as the one we see at work in Western theoretical models.

In its raw, initial state, a model may come up very quickly against the data for which it cannot provide any explanatory coverage. Rather than scrap it out of hand, however, its users will tend to give it successive modifications in order to enlarge its coverage. Sometimes, such modifications will involve the drawing of further analogies with phenomena rather different from those which provided the initial inspiration for the model Sometimes, they will merely involve "tinkering" with the model until it comes to fit the new observation. By comparison with the phenomena which provided its original inspiration, such a developed model not unnaturally seems to have a bizarre, hybrid area about it.

Examples of the development of theoretical models abound in the history of science. One of the best documented of these is provided by the modern

atomic theory of matter. The foundations of this theory were laid out by Rutherford, who based his original model on an analogy between the passage of ray-beams through metal foil and the passage of comets through our planetary system. Rutherford's planetary model of the basic constituents of matter proved extremely useful in explanation. When it came up against recalcitrant data, therefore, the consensus of scientists was in favor of refining it rather than scrapping it. Each of the several modifications of the model was a response to the demand for increased explanatory coverage. Each, however, recovered the theoretical model one step further, away from the familiar phenomena, which had furnished its original inspiration.

In studying traditional African thought, Western scholars scarcely ever have the historical depth available to the student of Western scientific thought. So they can make few direct observations on the development of its theoretical models. Nevertheless, these models often show just the same kinds of bizarre, hybrid features as the models of the scientists. Since they resemble the latter in so many other ways, it seems reasonable to suppose that these features are the result of a similar process of development in response to demands for further explanatory coverage.

In treating traditional African religious systems as theoretical models akin to those of the sciences, I have really done little more than take them at their face value. Although this approach may seem naive compared to the sophisticated "things-are-never-what-they-seem" attitude more characteristic of the social anthropologist, it has certainly produced some surprising results. Above all, it has cast doubt on most of the well-known worn dichotomies used to conceptualize the difference between scientific and traditional religious thought: Intellectual versus emotional; rational versus mystical; reality-oriented versus fantasy-oriented; casually oriented versus

supernaturally oriented; empirical versus non-empirical; abstract versus concrete; analytical versus non-analytical. All of these are shown to be more or less inappropriate. If the reader is disturbed by these casting away of established distinctions, he/she will, I hope, accept it when he/she sees how far it can pave the way towards making sense of so much that previously appeared senseless.

One thing that will continue to bother the reader is my playing down of the difference between non-personal and personal theory. For while I have provided what seems to me an adequate explanation of the difference, I have treated it as a surface difference concealing an underlying similarity of intellectual process. I must confess that I have used brevity of treatment here as a device to play down the gulf between the two kinds of theory. But I think this is amply justified in reaction to the more usual state of affairs, in which the difference is allowed to dominate all other features of the situation. Even familiarity with theoretical thinking in their own culture, cannot help anthropologists and scientists who are dominated by this difference. For once blinded, they can only see traditional African thought as wholly other. With the bridge from their own thought-patterns to those of traditional Africa blocked, it is little wonder they can make no further headway.

The aim of my exposition has been to reopen this bridge. The point I have sought to make is that the difference between non-personal and personalized theories is more than anything else a difference in the idiom of the explanatory quest. Grasping this point is an essential preliminary to realizing how far the variable dichotomies used in this field are simply obstacles to understanding. Once it is grasped, a whole series of seemingly bizarre and senseless features of traditional African thinking become

immediately comprehensible. Until it is grasped, they remain essentially mysterious. Making the business of personal versus impersonal entities the crux of the difference between African religious theory and science not only blocks the understanding of tradition, it also draws a red herring across the path to an understanding of science.

All this is not to deny that science has progressed greatly through working in a non-personal theoretical idiom. Indeed, as one who has hankerings after physics, I am inclined to believe that it is this idiom, and the idiom only, which will eventually lead to the triumph of human affairs. What I am saying, however, it that this is more a reflection of the nature of reality than a cue to the essence of scientific method. For the progressive acquisition of knowledge, we need both the right kind of theories and the right attitude to them. But it is only the latter which we call science. Indeed, any attempt to define science in terms of a particular kind of theory runs contrary to its very essence. Now, at last, I hope it will be evident why, in comparing African traditional thought with Western scientific thought, I have chosen to start with a review of continuities rather than with a statement of crucial differences. For although this order of procedure carries the risk of one's being understood to mean that African traditional thought is a kind of science, it also carries the advantage of having the path clear of red herrings when one comes to tackle the question of difference.

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